

DETAILED ACTION

Claim Objections

1. Claims 10 and 13 are objected to because of the following informalities: The ledge defined in claim 10, should apparently read "...including at least one [(an)] inwardly projecting ledge..." and "...said at least one ledge defining..." in order for proper dependency of claim 13, which should read "...wherein said at least one ledge comprises a plurality...". Appropriate clarification or correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10 – 13, and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by E.P.O. Publication No. EP0499506 to Leon ("Leon").

As to claim 10, Leon teaches a caged nut insert comprising:

an insert body having an inside surface, an outside surface (**See Fig. 1 for body with inside and outside surfaces**) and defining an opening (**5, Fig. 1**) , said inside surface including an inwardly projecting ledge (**12, Fig. 1**), said ledge defining a support surface axially spaced from said bottom opening (**See Figs. 4 and 5**); and

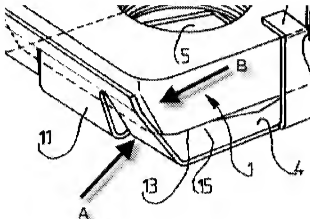
a nut having a periphery and defining a threaded axial opening (**1, 14, and 2, Fig. 1**);

wherein said nut is fixed to said insert body with said periphery supported by said support surface **(See Figs. 4 and 5)**, at least one fluid flow passage being defined between said insert body inside surface and the periphery of said nut, said at least one fluid flow passage communicating with said bottom opening **(See Fig. 2, fluid flow passages are inherent in the Leon device because fluid is fully capable of flowing through the interstices between the nut and the cage).**

4. As to claim 11, Leon teaches the caged nut insert of claim 10, wherein said insert body includes retaining arms projecting axially from opposed locations adjacent said bottom opening, said retaining arms extending axially above said nut and being bent over said nut to retain said nut against said ledge **(See Fig. 2).**

5. As to claim 12, Leon teaches the caged nut insert of claim 11, wherein said retaining arms have an upper portion at a first width and a lower portion at a second width greater than said first width **(See Figs. 1 and 2, lower portion of 7 is wider than upper retaining portion 9).**

6. As to claim 13, Leon teaches the caged nut insert of claim 10, wherein said ledge comprises a plurality of angularly spaced ledge, and said inside surface includes angularly spaced shoulders flanking each ledge, said shoulders configured to resist rotation of said nut relative to said insert body **(See Figs. 1 and 2, ledges 12 are angularly spaced apart at 180° and the insert has shoulders in that the inside portion of the insert that has not been used to form the ledge 12 acts as a shoulder to inhibit rotation of the nut when the nut is put in. See again Figs. 1 and 2).**



7. The image above (Leon Fig. 2 [redacted to show detail], with references "A" and "B" added), shows the corner flanked by the shoulder of the insert ("B," the corner, its rotationally inhibited by the shoulder, "A." Shoulders flank the support surface, distal end of flange 11, on either side).
8. As to claim 15, Leon teaches the caged nut insert of claim 10, wherein said insert body is formed of sheet metal (col. 1 line 3, "tôle" is French for "plate" or sheet metal).
9. As to claim 16, Leon teaches the caged nut insert of claim 10, wherein said nut defines a threaded axial opening (See Fig. 1, threaded opening 2, is a threaded axial opening).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-4, 6-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (**Instant application, Figs. 1 and 2, and page 2 line 25 through page 5 line 18**) ("AAPA") in view of Leon and in further view of U.S. Patent No. 3,754,677 to Hug ("Hug").

14. As to claim 1, AAPA teaches a filter cartridge (**AAPA 14, Fig. 1**) comprising:

a housing extending between axially spaced ends to define an interior space **(AAPA 44 and 42, Fig. 1, and see page 2 lines 25-30)**, a fluid circulation opening at a first axial end **(AAPA shown at the top of Fig. 1, enclosed in the base 12, and entering through the axial end of upper cup section 42)** and a sump opening at a second axial end **(AAPA 65, Fig. 1 and page 3 lines 10-11)**;

a filter element **(AAPA page 3 lines 5-11)** supported in said interior space intermediate said fluid circulation opening and said sump opening;

a drain insert **(AAPA 100, Fig. 1 and page 4 lines 5-10)** adjacent said sump opening said drain insert comprising:

an insert body with inside and outside surfaces and defining a drain opening **(AAPA 100, Fig. 1. and page 4 lines 3-25, in the AAPA, the drain body and drain insert are integrated in a single piece (AAPA 110, Fig. 1, and page 4 lines 5-15)**;

a drain control element threadably engaged in said threaded axial opening **(AAPA 120, Fig. 1, page 4 lines 14-25, the mounting bolt acts as a drain control element threadably engaged in the opening of the drain insert)**,

and fluid flow passages **(AAPA 114, Fig. 1, page 4 lines 15-20, the apertures allow fluid to flow)** communicating with said drain opening and said drain insert is secured to said housing adjacent said sump opening with said drain opening in communication with said sump opening.

Applicant's admitted prior art is different from claim 1 in that it does not teach: said inside surface having an inwardly projecting ledge defining a support surface axially spaced from said drain opening; a nut having top and bottom surfaces connected by a periphery surface and defining a threaded axial opening, wherein said nut is fixed to said insert body with at least a portion of said polygonal peripheral surface resting on said support surface, at least one fluid flow passage being defined between said insert body inside surface and said peripheral surface of the. The admitted prior art is different from claim 4 in that a support surface comprising a plurality of angularly spaced inwardly displaced portions is not taught. The admitted prior art is different from claims 7 and 9 in that axially projecting retaining arms, with wide base portions and narrow top portions bent around the nut, are not taught on the insert.

As to the limitations of claim 1, Leon teaches a nut holding insert where inside surface has an inwardly projecting ledge (**Leon 12, Fig. 1**) defining a support surface axially spaced from said opening (**Leon see Fig. 1, opening is ref. 5**); a nut having top and bottom surfaces connected by a periphery surface and defining a threaded axial opening (**Leon see Fig. 2**), wherein said nut is fixed to said insert body with at least a portion of said polygonal peripheral surface resting on said support surface (**Leon see Figs 2, 4 and 5**), at least one fluid flow passage being defined between said insert body inside surface and said peripheral surface of the of the nut (**Leon see Figs. 2 and 4, fluid flow passages are inherent in the Leon device because fluid is fully capable of flowing through the interstices between the nut and the cage**).

And, as to the further limitations of claim 4, Leon teaches a support surface with angularly spaced portions (**Leon 12, Fig. 1, the support surfaces 2 are angularly spaced at 180°**).

As to the limitations of claims 7 and 9, Leon teaches retaining arms with top portions narrower than the bottom portions (**Leon 7 and 9, Figs. 1 and 2**). The top portion of the retaining arms are bent over the top of the nut (**Leon see Fig 2**).

Hug provides motivation to use "caged", or "captive," nut drain assemblies in automotive oil sump drains because known construction of drain devices in oil sumps that only allow flow through the threaded aperture of the nut cause dregs to remain behind and are not properly drained off (**Hug col. 1 lines 9-25**). Hug further teaches that it is beneficial to have a sump drain device where the nut is lifted off of the bottom of the container to solve this problem (**Hug col. 1 lines 25-26**). The caged nut insert device in Leon provides this lifting function through the support tabs (**Leon 12, Fig. 1**). Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to provide the "caged or captive" nut in Leon, in order to ensure proper discharge of all unwanted dregs in the sump of the admitted prior art device.

15. As to claim 2, the AAPA, Leon, and Hug combined teach the device of claim 1, and the AAPA further teaches that the drain control element is a drain cock (**AAPA 99, Fig. 1, and page 4 lines 20-25**).

16. As to claim 3, the AAPA, Leon, and Hug combined teach the device of claim 1, and the AAPA further teaches that the drain control element is a drain bowl fastened to

an outside surface of the housing (**AAPA 16 and 120 combined, Fig. 1, drain bowl 16 is mounted with mounting bolt 120 engaging the threaded opening**).

17. As to claim 6, the AAPA, Leon, and Hug combined teach the device of claim 1, and the AAPA further teaches that the housing comprises upper and lower section joined a periphery roll seam (**AAPA 42, 44, and 50 combined, and see page 2 lines 25-30**), said lower section including a central axial protrusion surrounding said sump opening (**AAPA col. 3 line 20, ref. 84**). The caged nut insert of Leon is not generally cylindrical, instead it is square. The applicant admitted prior art teaches a generally cylindrical, instead it is square. The applicant admitted prior art teaches a generally cylindrical insert (**AAPA 200, Fig 2**). The insert as depicted in Leon is designed to function with a square aperture (**Leon Fig. 3**), But it would be obvious to provide a round, or cylindrically, shaped device in Leon in order to accommodate a circular aperture. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to modify the shape of the insert in Leon, from square to cylindrical, in order to accommodate circular apertures.

18. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA Leon and Hug as applied to claim 1 above, and further in view of U.S. Patent No. 4,383,787 to Reynolds ("Reynolds").

As to claim 8, in the combination of AAPA, Leon, and Hug the thickness of the metal used is not specified. Reynolds teaches the use of 0.036" steel for making nut cages (**Reynolds col. 6 lines 30-35**). The use of 0.036" sheet metal would have been obvious to a person of ordinary skill in the art at the time of invention because

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0.036" sheet metal is a standard market-available resources in the form of 20 Gauge steel, or 19 Gauge aluminum, and the use of 0.036" steel, especially, is shown in Reynolds as appropriate in strength for construction of a nut cage.

19. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leon.

As to claim 14, Leon teaches the limitations of claim 10, but does not teach that there are four ledges, only 2 ledges. Adding additional ledges to the device of Leon is an obvious duplication of parts that is within the understanding of a person of ordinary skill in the art because additional ledges provide additional support for the nut in the cage, and provide a failsafe in case one of the ledges breaks. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to provide for four ledges in the device of Leon in order to provide additional support and a failsafe mechanism. MPEP 2144.04(VI)(B).

20. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leon in view of AAPA.

As to claim 17, Leon teaches a caged nut insert comprising:

an insert body defining a cavity surrounding an axial opening (**Leon see Fig. 1, the opening is at 5, and a cavity is essentially a hollowed out space, which the base 4, side walls 3 and 6, and side tabs 7 create**), said cavity having an inside surface including an inwardly projecting ledge (**12, Fig. 1**) axially spaced from said opening; and

a nut having a periphery and defining a threaded central aperture (**Leon 1, Fig 1**);

wherein said nut is fixed to said insert body with at least a portion of said periphery resting on said ledge (**Leon see Figs. 2, 4, and 5**) and a plurality of passages defined between said periphery and said inside surface, said passages communicating with said opening (**Leon see Figs. 2 and 4, fluid flow passages are inherent in the Leon device because fluid is fully capable of flowing through the interstices between the nut and the cage**).

Leon is different from claim 17 in that the insert body is not in a generally cylindrical configuration, Leon is instead substantially square. The applicant admitted prior art teaches a generally cylindrical insert (**AAPA 200, Fig. 2**). The insert as depicted in Leon is designed to function with a square aperture (**Leon Fig. 3**), but it would be obvious to provide a round, or cylindrically, shaped device in Leon in order to accommodate a circular aperture. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to modify the shape of the device in Leon, from square to cylindrical, in order to accommodate circular apertures.

21. As to claim 18, Leon as combined with the AAPA teaches the insert of claim 17, wherein said insert body includes retaining arms projecting axially from opposed locations adjacent said opening, said retaining arms extending axially above said nut and being bent over said nut to retain said nut against said ledges (**Leon see Fig. 2**).

22. As to claim 19, Leon as combined with the AAPA teaches the insert of claim 18, wherein said retaining arms have an upper portion at a first width and a lower portion at

a second width greater than said first width (**See Figs. 1 and 2, lower portion 7 is wider than upper retaining portion 9**).

23. As to claim 20, Leon as combined with the AAPA teaches the insert of claim 17, wherein said inwardly projecting ledge comprises a plurality of angularly spaced inwardly displaced portions of said insert body (**See Figs. 1 and 2, ledges 12 are angularly spaced apart at 180°**).

Allowable Subject Matter

24. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

25. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not anticipate or fairly suggest an oil filter with drain valve insert **having inwardly displaced portions receiving the corner** of a nut as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCAS STELLING whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on 571-272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 4151